

ABSTRACT

The present invention provides a method for upgrading low-rank coal unsuitable for production of a reduced metal by a conventional carbon composite method to produce an upgraded coal suitable for the carbon composite method. The present invention also provides a method for producing a high-quality reduced metal using the upgraded coal as a carbonaceous material to be incorporated. In these methods, coal is first aged by heating in an organic solvent to produce upgraded coal for metallurgy having higher thermal plasticity than that of the coal. Then, a mixture of the upgraded coal for metallurgy and a metal oxide-containing raw material is agglomerated by an agglomerator, and the resultant agglomerates are reduced by heating in a moving hearth furnace and then melted by further heating to produce a reduced melt. The reduced melt is cooled and solidified in the moving hearth furnace to produce a reduced solid, and then the reduced solid is discharged to the outside of the furnace. Then, a slag is removed using a screen to recover a metal as a reduced metal.